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What we do

Manufacture a wide selection of performance products that can be trusted, both fluorinated and un-fluorinated.

Enable our customers to comply with regulations.

Ensure the products are documented to work with hardware of different types, both proportioning, and discharge.

Provide customers with detailed information and recommendations.

Get to know us on www.fomtec.com

Data not Opinion, why and how?

Our industry is going through a major transition, and we who take part at this early stage are responsible for getting this right. That is why **DATA** is essential and why **OPINIONS** don't work.

We are rewriting the foam manual, and old truths established in the 1970s and 1980s must be reconfirmed, **or as we have found**, new truths must be established.

The only way to do that is to test, test, and test some more to establish the limitations in these new products.

Single point testing.

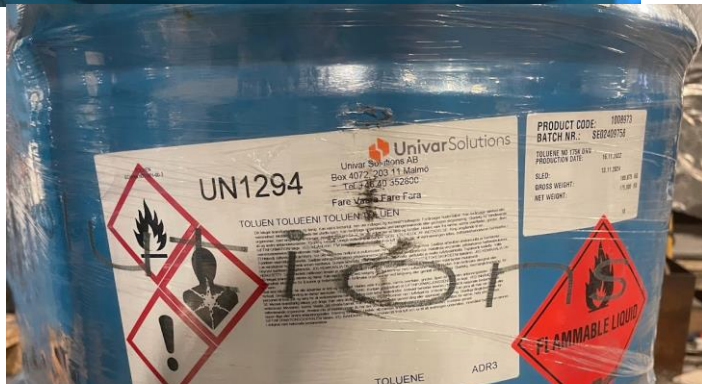
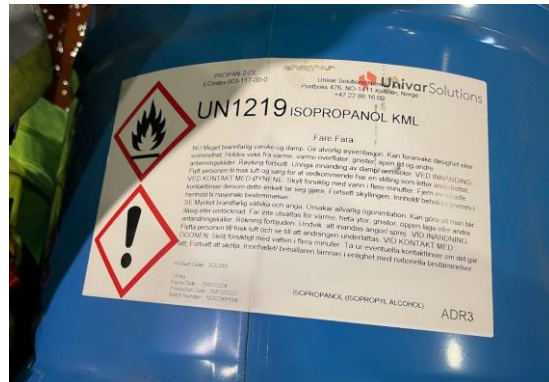
In the Fomtec Enviro Program we have to date performed more than 2000 large scale (4.65 m²) tests.

We believe in comprehensive testing, with foam qualities from real-world hardware during fire testing, as required by UL and FM.

In this pursuit of data, the Enviro Program keeps testing the foams with foam qualities from real-world hardware, on different fuels, and under different conditions.

Let us look at the key issues one by one.

Fuels



NFPA Research Foundation concluded in January 2020 after their test program of SFFF foams that:

6. Fuel type is a variable that is not covered in our listing/approval test protocol, and some foams struggle against other fuels (like gasoline) as compared to heptane. FFFs need to be listed for various fuels (gasoline, E10, Jet A, etc).

Factory Mutual (FM) has concluded that testing on Heptane does not qualify for all Hydrocarbons, and fuels with lower flashpoints and higher vapor pressure require separate approvals.

Testing shows a significant difference between hydrocarbon fuels due to their physical properties, such as flashpoint, vapor pressure, and surface tension.

Fuel	Flashpoint	Vapor Pressure
Heptane	- 4 °C	approx. 40-50 mmHg
E10 Gasoline	- 45 °C	approx. 225-720 mmHg
Hexane	- 22 °C	approx. 150 mmHg
Diesel fuel	52 °C	approx. 5 mmHg
Jet A I	38-52 °C	approx. 177 mmHg
North Sea Crude	38-70 °C	approx. 300 mmHg

Because of this, we must test with different water-immiscible fuels to establish the correct application density with different kinds of equipment.

This is especially true for fixed systems, compared to manual, portable, and mobile attacks that allow for dynamic changes to application rates and methods.

The fuel topic becomes even more interesting when we look at water-miscible fuels.

And we can keep on adding; how about blends of fuels?

Today it is clear that we must test beyond IPA, Acetone, Ethanol, and Methanol. We must add more fuels and find the appropriate application densities for those fuels in combination with foam qualities from real-world hardware

Today clients ask for data on fuels concerning SFFF transitions, data we never thought necessary just a few years ago.

Data that was probably equally as important back then as it is today, but we had fallen asleep and had become complacent.

And the list is long, so we have a lot of work to do.

And we are working on it as we speak.

Discharge devices

It is very obvious, but it still needs to be said that transitioning away from PFAS is not about changing a concentrate. It is a change of system.

Not only do we need to make sure it is clean, but we also need to ensure it can put out fires.

What fights the fire is the foam generated by a system, it is not the concentrate alone. It is that white stuff coming out of the nozzle.

So let's talk about discharge devices.

Discharge devices

Aspirated foam
sprinkler



Standard
sprinkler



UNI 86
Test Nozzle



Foam
Chamber



Monitor



Discharge devices

Real-world discharge devices are nothing like a laboratory test nozzle.

This is especially true for standard non aspirated sprinklers.

No aspect of the European standard EN 1568 is relevant for qualifying a foam for use with sprinklers. We need test data that correspond with the real world.

Real-world applicability

- When we test, it is with the real world in mind. What can be deployed in a real-world system? It is not about a beauty contest on single data points.
- We look at system pressures, and hydraulic conditions.
- What are the system heights?
- What are the combinations of fuels?

Fluorine Free Foam Systems – FM5 I 30 Fire Test

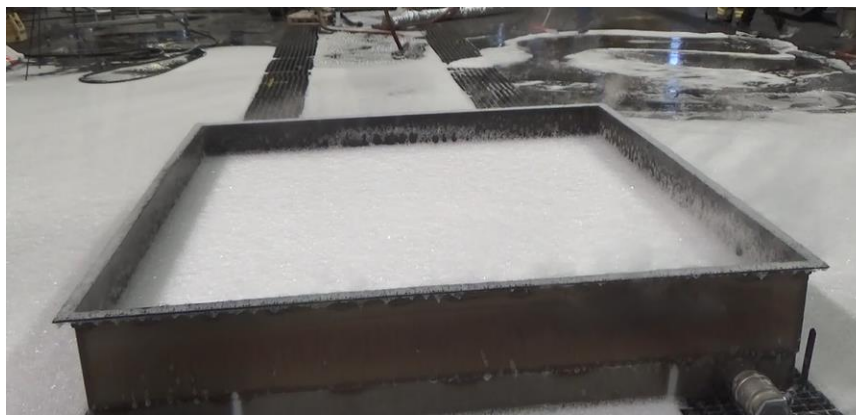


Exact same test run immediately after the last video. The only parameter changed was the model of the K115 sprinkler. Compare the progress after 3 minutes, 5 minutes and at burnback. Huge difference. Assuming that “Similar” nozzles perform in the same way is not correct.

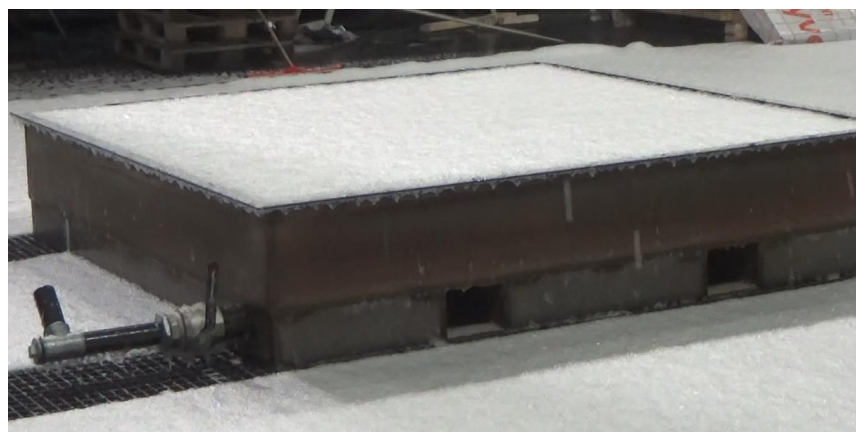
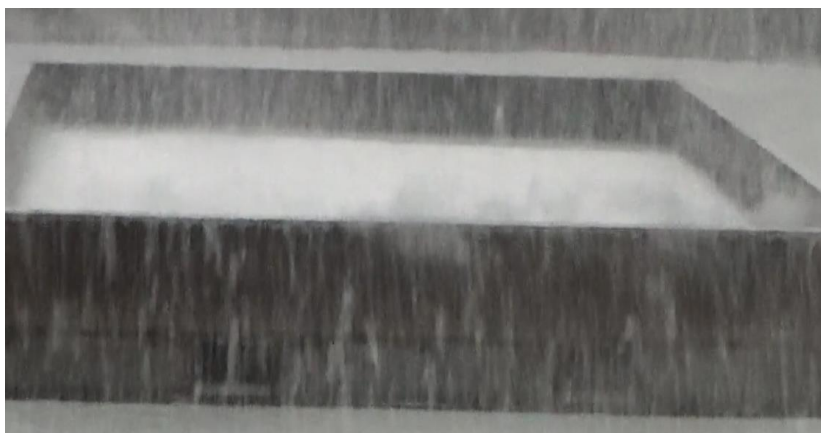
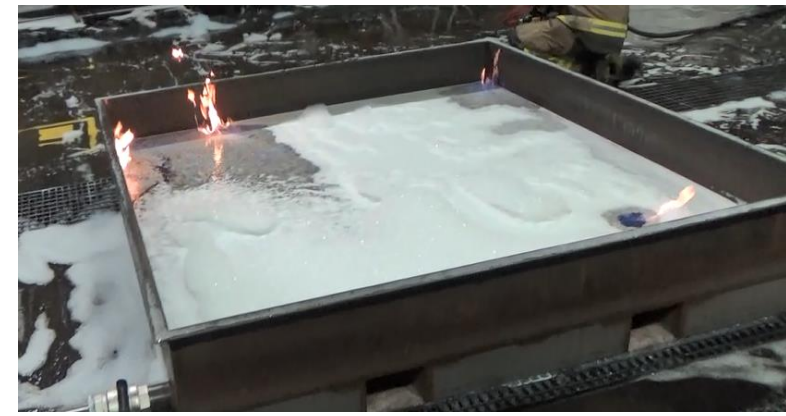
3 Minutes



5 Minutes



Burn back



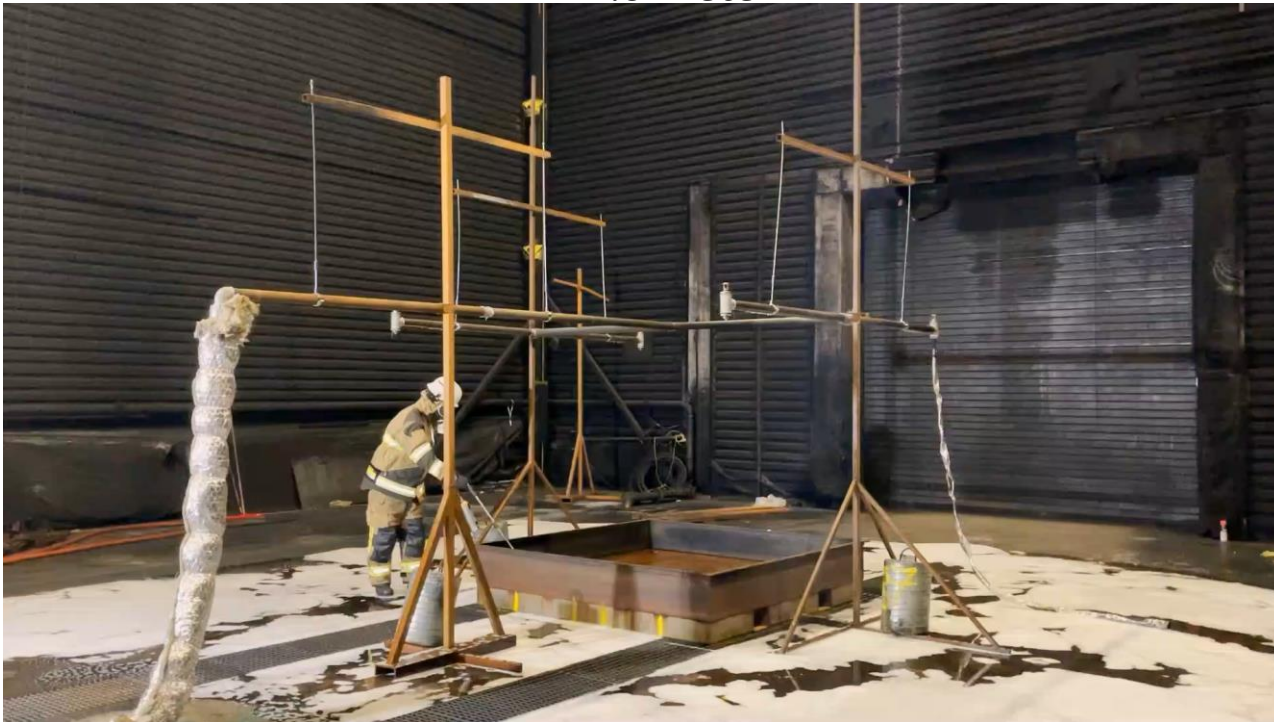
Having performed more than 2000 fire tests in the Fomtec Enviro Program, it is clear that the installation height of deluge/ sprinkler nozzles plays a role in the system's performance.

Testing at 4.5 meters does not qualify for use at, for example, 15 meters.

Many applications are much higher.

Heights

1.8 meter



15 meter



Heights

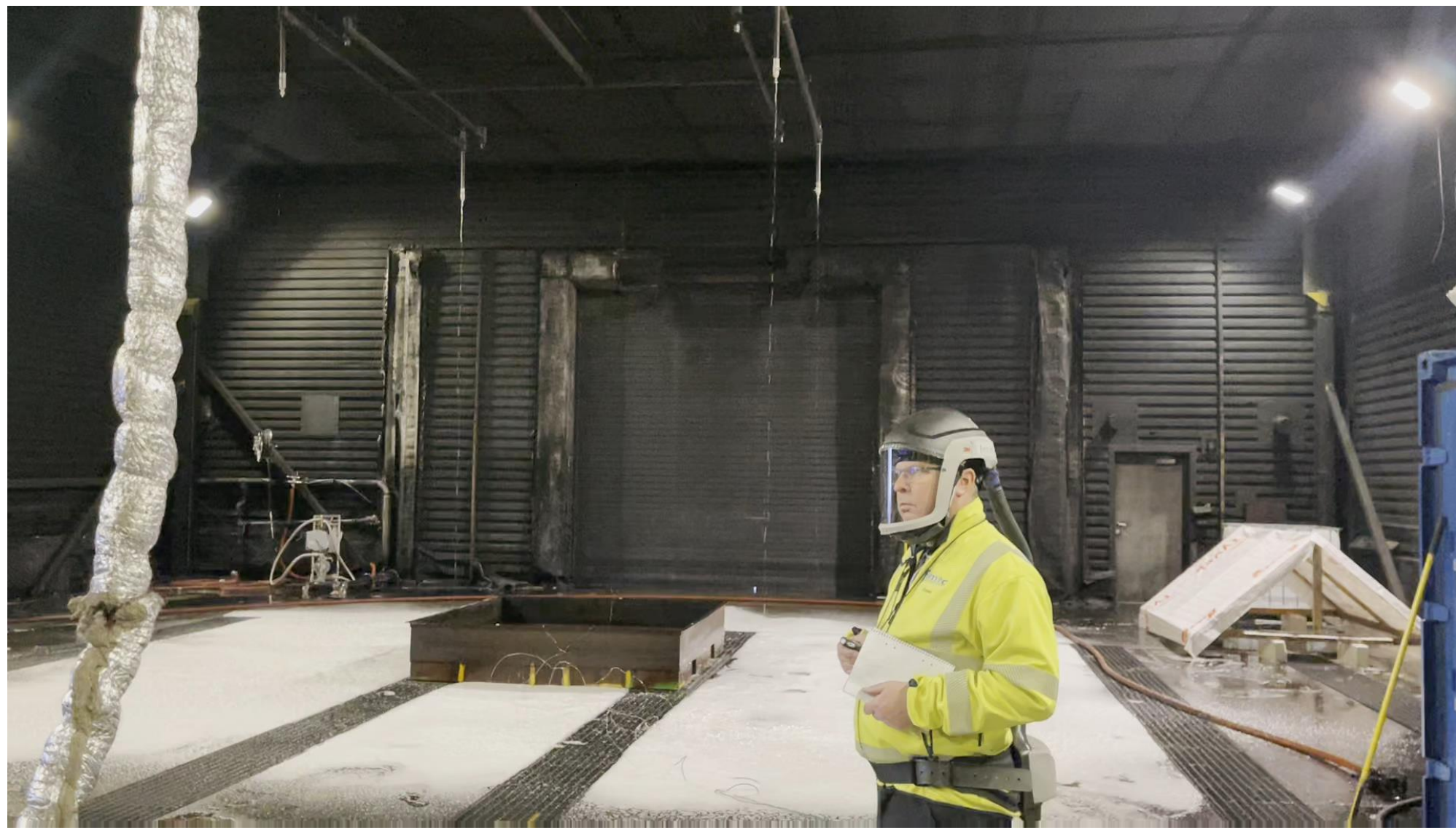
What does a test at 4.5 meters, say about the performance in let's say an aircraft hangar with a height of 30 meters? Let alone a single point test with an inappropriate nozzle



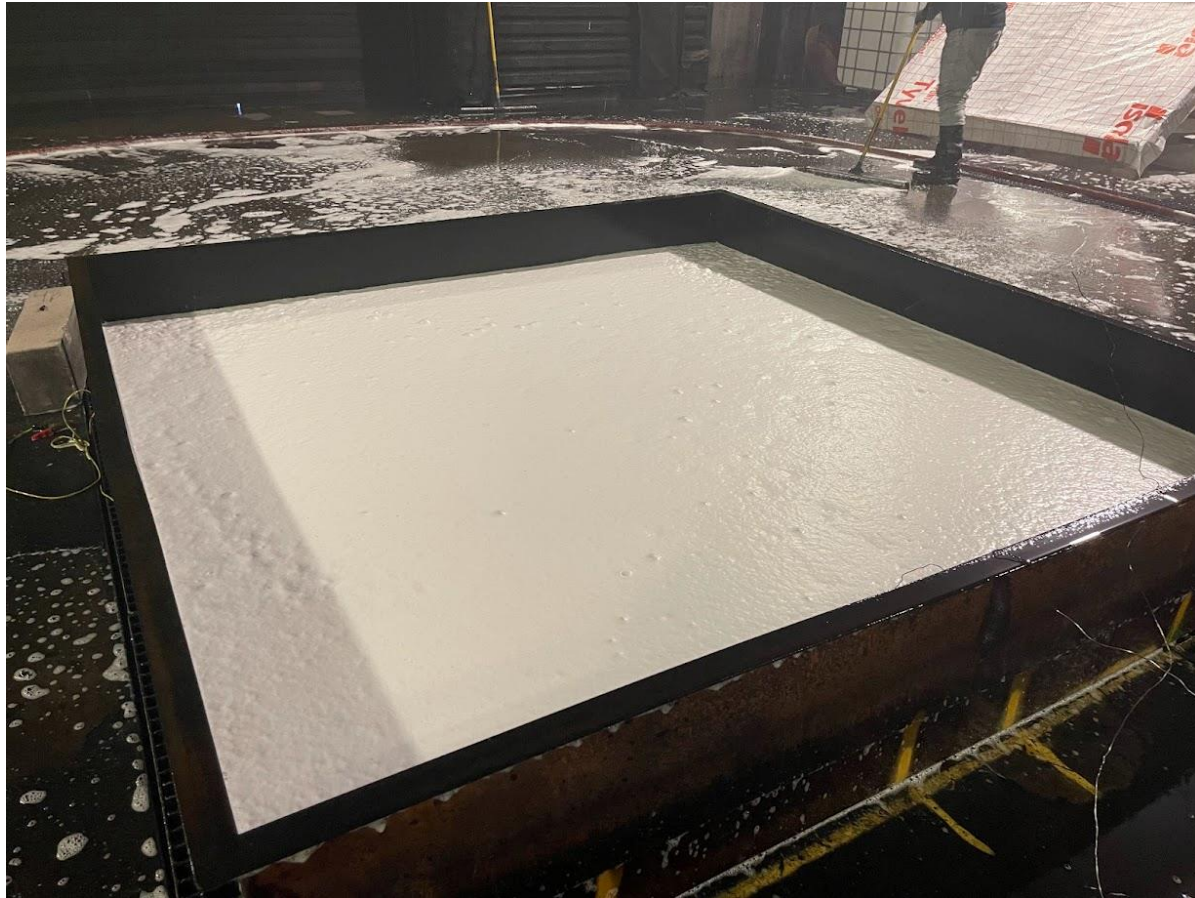
FM is more recognized in Europe for non-aspirated foam-assisted sprinklers. Our US customers also require FM approvals, and FM requires testing at minimum and maximum heights and we agree this is important, so we went ahead with an FM program,

But we do test according to UL 162 as well.

Heptane @ 4.1 lpm/m² (K.-80)(0.1 gpm/ft²) Fire Fighting Foams & Equipment



5 minutes water of deluge the 2 torch



Burnback norm 5 minute, photo at 7



FM vs UL Sprinkler

Fuel:

FM require testing with Hydrocarbons at different flashpoints and vapor pressure.

UL use Heptane as reference fuels for all hydrocarbons.

Height:

FM require testing at minimum and maximum Heights

UL only test at approx. 4.5 meter.

Test density:

FM test and approve at same density

UL apply a 1.6 x safety factor

Data is a responsibility

Our data-driven approach is a commitment and a responsibility.

You are not innocent anymore when you have data, there is no way going back, you got to stick to data, and our recommendations must be based on what we have learned.

But the data and the listings and approvals that it is leading to enable a safer transition, based on data not opinion.

Real world vs test conditions..

- Remember NFPA application densities are minimum densities.
- NFPA Research Foundation clearly states that SFFF needs to be deployed strictly within listed /approved parameters.
- Test data must challenge old truths. It needs to work in the real world.

Thanks for your attention!

Stay safe, and do not compromise!